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(54) **SEMICONDUCTOR DEVICE WITH OXIDE SEMICONDUCTOR LAYER**

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(58) **Field of Classification Search**
CPC H01L 29/7869; H01L 29/78696
See application file for complete search history.

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(57) **ABSTRACT**

A semiconductor device which includes an oxide semiconductor layer, a source electrode and a drain electrode electrically connected to the oxide semiconductor layer, a gate insulating layer covering the oxide semiconductor layer, the source electrode, and the drain electrode, and a gate electrode over the gate insulating layer is provided. The thickness of the oxide semiconductor layer is greater than or equal to 1 nm and less than or equal to 10 nm. The gate insulating layer satisfies a relation where $\in_r/d$ is greater than or equal to 0.08 (nm^{-1}) and less than or equal to 7.9 (nm^{-1}) when the relative permittivity of a material used for the gate insulating layer is $\in_r$ and the thickness of the gate insulating
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